

REMARKS

The present invention is an antenna assembly for a handheld communication apparatus, a method of producing an assembly, and a handheld telecommunication apparatus. An antenna assembly in accordance with an embodiment of the invention includes a conductive element 120 defining a planar antenna which is permanently external to a housing of a handheld telecommunication apparatus, as illustrated in Figs. 2 and 4, a generally flat and planar flexible member, as illustrated in Figs. 5 and 6, arranged to carry the conductive element and to protrude and be disposed permanently in a fixed position from and relative to a surface of the housing of the handheld communication apparatus as illustrated in Fig. 1. The member tapers in width from the fixed position to an end of the member and is flexible in use of the apparatus.

Claims 1, 2, 4-18, 22-24, 28-50 and 53-58 stand rejected as being indefinite regarding the terminology "tongue-shaped". The claims have been amended to recite the member tapers in width from the fixed position to the end of the member and the member is flexible in use which overcomes the stated grounds of rejection. The claimed shape is supported by the application as filed.

Claims 1, 2, 4-18, 22-24, 28-50 and 53-58 stand rejected under 35 U.S.C. §103 as being anticipated by United States Patent 6,232,924 (Winstead et al). These grounds of rejection are traversed for the following reasons.

Independent claim 1 recites:

An assembly comprising:
a conductive element defining a planar antenna which is always external to a housing of a handheld telecommunication apparatus; and
a generally flat and planar flexible member arranged to carry the conductive element and to protrude and be disposed always in a fixed position from and relative to a surface of the housing of the handheld telecommunication apparatus; and wherein
the member tapers in width from the fixed position to an end of the member and the member is flexible in use.

Independent claim 22 recites:

A method of producing an antenna assembly comprising the steps of:
arranging a planar antenna element to be disposed on a substrate; and
encapsulating the planar antenna element within a generally flat and planar, flexible member by means of an injection moulding process; and wherein
the member longitudinally tapers in width.

and

Independent claim 57 recites:

A handheld telecommunication apparatus comprising:
a planar antenna disposed on a substrate which is always external to a housing of the handheld apparatus; and
a generally flat and planar, flexible member encapsulating the planar antenna and the substrate, said flexible member coupling said antenna to the handheld apparatus and being arranged to protrude and be disposed always in a fixed position from and relative to a surface of the housing of the handheld telecommunication apparatus; and wherein
the member tapers in width from the fixed position to an end of the member and is flexible in use of the apparatus.

With respect to independent claims 1 and 57, it is submitted that Winstead et al do not disclose a generally flat and planar flexible member arranged to carry the conductive element and to protrude and be disposed always in a fixed position from and relative to a surface of the handheld communication apparatus and the

member tapers from the fixed position to an end of the member as recited in claims 1 and 57 and does not disclose encapsulating the planar antenna and substrate within a generally flat and planar flexible member by means of an injection moulding process and the member longitudinally tapers in width as recited in claim 22. Winstead et al's antenna is not disposed always in a fixed position and relative to a surface of the handheld communication apparatus as recited in claims 1 and 57 since, as may be seen from Fig. 7, the antenna is pivotable. Moreover, antenna 30 is not tapered as may be seen from its various illustrations in Figs. 1, 4 and 7 which contributes to a robust structure which is necessary for a fixed external antenna as recited in the claims.

With respect to claim 22, the Examiner recites column 8, lines 19-67, and column 9, lines 1-3, as allegedly disclosing an injection molding process. However, what is disclosed therein is the utilization of cloth which has thermo plastic elastomer coated thereon followed by a nylon cloth coat overmolded by a compression molding. This does not meet the subject matter of claim 22 which recites "encapsulating the planar antenna element within a generally flat and planar shaped flexible member by means of an injection molding process." Moreover, there is no basis why a person of ordinary skill in the art would be motivated to modify the molding process described in Winstead et al to be the claimed injection molding process to produce the claimed member which tapers in width from the fixed position to an end of the member. This process produces a robust external antenna.

Moreover, there is no basis in the record why a person of ordinary skill in the art would be led to modify the teachings of Winstead et al to arrive at the subject matter of dependent claims 2, 4-18, 23-24, 28-50, 53-56 and 58.

Claims 1, 2, 4-18, 22-24, 28-50 and 57-58 stand rejected under 35 U.S.C. §103 as being unpatentable over United States Patent 5,363,114 (Shoemaker). The Examiner contends that Shoemaker discloses everything except that the flexible member is tongue-shaped. The Examiner considers the shape of the member to be an obvious modification. These grounds of rejection are traversed for the following reasons.

Shoemaker discloses a planar serpentine antenna which is totally flexible until mounted on a supporting surface of a non-electronic device such as a car window at which point it is not flexible in use of the apparatus as required by claims 1 and 57. Shoemaker does not disclose the use of the antenna with a handheld apparatus as recited in independent claims 1 and 57. There is no basis in the record why a person of ordinary skill in the art would consider the utilization of Shoemaker for a handheld apparatus since Shoemaker describes use of an antenna on a supporting surface which is not part of a handheld apparatus. Shoemaker's antenna neither protrudes nor is disposed in a fixed position from and relative to a surface of any handheld apparatus.

The Examiner has not provided any reasoning in the record other than that of "an obvious matter of design choice" which would suggest that the member tapers in width from the fixed position to an end of a member and the member is flexible in use.

The claims dependent on independent claims 1 and 57 are patentable for the same reasons set forth above.

With respect to claim 22, it is noted that the Examiner has not even discussed the process of making an antenna in Shoemaker. It is submitted that Shoemaker's antenna does not meet the limitations of claim 22, including

"encapsulating the planar antenna element within a generally flat and planar, flexible member by means of an injection molding process and furthermore, that the member tapers in width from the fixed position to an end of the member" as recited in claim 22.

Moreover, the dependent claims are patentable for the same reason as set forth above with respect to claim 22.

Claims 1, 2, 4-9, 12, and 57-58 stand rejected under 35 U.S.C. §103 as being unpatentable over United States Patent 6,056,708 (MacDonald, Jr.). These grounds of rejection are traversed for the following reasons. MacDonald discloses a retractable antenna which is not always external and fixed as recited in the claims. See column 3, lines 24-51 of MacDonald, which describe the retraction of the antenna. Accordingly, MacDonald do not meet the always fixed position planar antenna which is always external to the handheld telecommunication apparatus as recited in claims 1 and 57.

Moreover, the dependent claims are patentable for the same reasons set forth above.

Newly submitted claim 59 has been added to define the antenna assembly as an external antenna for a handheld telecommunications apparatus which is not suggested by Winstead, Shoemaker or MacDonald.

Newly submitted claim 60 defines an antenna assembly for a handheld apparatus which is not suggested by Winstead, Shoemaker and MacDonald.


To the extent necessary, Applicants petition for an extension of time under 37 C.F.R. §1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No.

01-2135 (367.3905700) and please credit any excess fees to such

Deposit Account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

A handwritten signature in black ink, appearing to read "Donald E. Stout", is written over a horizontal line.

Donald E. Stout
Registration No. 26,422
(703) 312-6600

DES:dlh